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Management of Bartholin's cyst and abscess using the Word catheter: implementation, recurrence rates and costs

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ABSTRACT

Objective: Bartholin's cysts and abscesses occur in about 2% of women. None of the surgical or conservative treatment approaches have been proven to be superior. The Word catheter is an outpatient treatment option, but little is known about aspects of implementing this therapy in an office setting. The present study's focus is on recurrence rates and organizational requirements of implementing outpatient treatment of Bartholin's cyst and abscess and compares costs of Word catheter treatment and marsupialization.

Study design: Between March 2013 and May 2014 30 women were included in the study. We measured time consumed for treatment and follow-up and analyzed costs using the Word catheter and marsupialization under general anesthesia. We also assessed the ease of use of the Word catheter for application and removal using a standardized visual analog scale (VAS 1–10).

Results: Word catheter treatment was successful in 26/30 cases (87%). Balloon loss before the end of the 4-week treatment period occurred in 11/26 cases with a mean residence time of 19.1 (±10.0) days. None of the patients with early catheter loss developed recurrent cyst or abscess. Recurrence occurred in 1/26 cases (3.8%). Difficulty-score of application was 2 [1–10] and of removal 1 [1], respectively. Costs were € 216 for the treatment in the clinic as compared with € 1584/€ 1282 for surgical marsupialization with a one-night stay or daycare clinic, respectively.

Conclusions: The present study indicates that the Word catheter is an easy to handle, low cost outpatient procedure with acceptable short-term recurrence rates. Treatment costs are seven times lower than for marsupialization.

Introduction

Bartholin's cysts and abscesses are common occurring in about 2% of all women [1]. The majority of affected women are in their reproductive years. The pathogenesis is an obstruction of the Bartholin's duct leading to a cystic formation in posterior part of the vaginal introitus and superinfection. Presentation varies from asymptomatic cysts to large, painful abscesses. A number of surgical and conservative approaches [2–5] has been described, but none has been proven to be superior and recurrence rates are up to 38% [2]. Surgical marsupialization, the standard treatment in our region, is associated with low recurrence rates [2] but requires local anesthesia [2], pudendal block [6] or general anesthesia [7].

The Word catheter, first described by Buford Word in 1968 [8] is commonly used in the United States but less so in Europe [9]. The word catheter is a 5.5 cm long, 15-French silicone device with a 3 ccm balloon, placed in the cyst or abscess with the intention of providing drainage and epithelialization of a tract to eliminate the need for surgery.

Reported recurrence rates are on the order of 4–17% [2], and thus probably slightly higher than marsupialization, but the Word catheter technique is simple and quick and can be done in the office. This meshes with the patients' preferences for minimal invasive procedures with fast recovery times and hospitals' pressure to reduce surgical admissions and costs.

The present study looks at aspects of implementing outpatient (office) treatment of Bartholin's cyst and abscess. We measured time consumed for treatment and follow-up and analyzed

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treatment costs with the Word catheter and marsupialization under general anesthesia. We also assessed the ease of use of the Word catheter.

Methods

Aim of this exploratory-descriptive-study was to analyze data on implementation of outpatient Word catheter treatment. Treatment costs were compared to the standard surgical treatment (marsupialization). Between March 2013 and May 2014 women presenting to our gynecology clinic with Bartholin's cyst or abscess were offered hospital admission with marsupialization under general anesthesia or treatment with the Word catheter under local anesthesia in an outpatient setting. Women with recurrent cysts/abscesses or sonographic evidence of loculations within the cyst/abscess and patients presenting, when none of the three study doctors was available, were not included.

The knowledge of the German language was required for acceptance in the study, though there were a number of patients with other first languages in our outpatient clinic. There was no financial or other incentive for their participation. Written informed consent was obtained from the whole study population. The study protocol was certified by the Ethics Committee of the Medical University of Graz (IRB00002556).

After informed consent 2% lidocaine was injected in the area of the planned incision over the mass. A 5 mm stab-incision was made with a No 11 blade and the content of the cyst/abscess was evacuated. Word catheter (Cook Medical Inc, Bloomington, IN, USA) was inserted and blocked with 3 ml of saline. If necessary due to superficial positioning, balloon catheter was secured with a suture. If this didn't work we extended the incision for a small marsupialization without placement of a catheter. Antibiotics were not administered.

Removal of the catheter was scheduled 4 weeks later. Patients were asked to return in case of problems such as catheter loss, pain, swelling or signs of inflammation. Patients were prescribed diclofenac up to 3 times daily if needed. Women were advised that no lifestyle modifications are necessary and specifically that sexual activity including intercourse was permitted.

In cases of catheter loss further treatment depended on examination results. With normal wound healing with no sign of recurrence no further treatment such as re-application was possible individually, independent of day of treatment.

We documented the duration of the visits and time required for application, difficulties of application and removal of the catheter and to score difficulty on a standardized visual analog scale (VAS 1–10) with 1 being no problem and 10 being a major problem.

Follow up was done by phone. Women were asked for signs of recurrence and required interventions or medication after the end of Word catheter treatment.

Costs for standard inpatient's treatment with marsupialization and outpatient's management with the Word catheter were calculated. Inpatient's procedure was calculated as a one-day stay on ward, and as an overnight stay, which is common practice for unscheduled surgeries of symptomatic patients. For cost calculations a total time of 50 min (30 min treatment time + 20 - min for administration) was assumed for patients treated with the Word catheter. For patients undergoing marsupialization, the cost calculation was based on an incision-suture time of 15 min and an overall operating room time of 45 min. Procedure specific costs for marsupialization are based on all marsupializations ($n = 36$) performed in the OR in 2013. Results for the calculation of the not procedure-specific costs are based on 2013 annual results of our department. Calculated costs were valorized for 2014.

Results are shown as median [minimum - maximum] or mean ($\pm$SD). Statistical analysis was done with SPSS (IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp.)

Results

Recruitment

30/57 women, opting for treatment with the Word catheter, were included in the study. There were 15 cases of Bartholin cysts and 15 cases of an abscess of the Bartholin gland in this group. 3/30 patients underwent outpatient marsupialization and 1/30 marsupialization under general anesthesia after unsuccessful Word catheter attempt. Those patients were excluded, leading to a final group of 26 women with successful Word catheter application included in the study. Fig. 1 shows a flowchart of the recruitment and selection process.

Patient's age was 34.1 [23.7–59.6] and BMI was 24.5 [18.7–31]. There was only one women with mild obesity (BMI > 30). Parity ranged from 0 to 4, with 8 patients being nulligravida.

Application and removal

Successful office treatment was achieved in 27 of the initial 30 cases (90%), including 26 cases of Word catheter application and 1 case of office marsupialization. In the first case of unsuccessful outpatient's treatment marsupialization in general anesthesia became necessary due to remaining of local inflammation on day 19 with removal of the catheter on patient's request; bacteriologic swap revealed anaerobic germ *prevotella bivia*. In the other case excision of the Bartholin gland under general anesthesia was done due to recurrence 2 months after primary outpatient's marsupialization following failed Word catheter application trial. In this case bacteriology showed *trichomonas vaginalis* in the abscess. In the third case of a small abscess marsupialization under general anesthesia was done after unsuccessful Word catheter application on patient's request. So finally in 26 of the 30 cases (87%) treatment solely with the Word catheter took place.

Balloon loss before the end of the 4-week treatment period occurred in 11/26 (43.1%) cases with a mean residence time of 19.1 ($\pm$10.0) days. In one case of catheter loss on day 4 a new catheter was placed as wound healing was not yet fully achieved. The anew inserted catheter fell out again 3 days later. In agreement with the patient no further treatment was performed and the cyst resolved completely.

None of the patients with early catheter loss developed recurrent cyst or abscess. Follow up was done by phone with a mean follow-up period of 188 ($\pm$120) days. One patient was lost to follow up. Recurrence occurred in 1 of the 26 cases (3.8%), initially treated with the Word catheter, and was operated with marsupialization under general anesthesia.

Catheter insertion was usually straight forward. Analysis of the difficulty-score of application showed a median of 2 [1–10]. Main problem reported for application was the softness of the catheter's shaft, which complicated balloon insertion in 4 patients. In cases of small cysts or abscesses with a diameter less than 2 cm inflating the balloon was mentioned to be difficult to impossible, as the incision site dilated when inflating the balloon making proper positioning impossible. Removal of the balloon was without complications in all cases. Difficulty score was 1 in all cases.

Time requirements

The calculated total outpatient clinic time includes the visits for application, for removal and unscheduled visits. Mean total time for all patients ($n = 30$) with the intention to be treated with the